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10/774,214

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EXAMINER

TRAN, ANHTAI V

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/774,214	Applicant(s) SHAH ET AL.	
	Examiner ANH TAI V. TRAN	Art Unit 2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 13-32 and 43-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 33-42 and 50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Action is responsive to Applicant's Response to Election/Restriction requirement filed February 19, 2008. In the Response, Applicant elected claims 1-12, 33-42 and 50 for examination and withdrew claims 13-32 and 43-49 from consideration is acknowledged. Please note claims 1-12, 33-42 and 50 are pending and claims 13-32 and 43-49 are withdrawn.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d) (1) and MPEP § 608.01(o). Correction of the following is required: "generating an encoded value" on line 2 of claim 8.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, the phrase "compressing losslessly decompressing the data structure" renders the claim indefinite because it is unclear to the examiner whether "compressing losslessly" or "losslessly decompressing" is claimed as an invention.

Furthermore, the compressing and decompressing are two distinct processes which render the claim indefinite when both processes are combined as a simultaneous process without introducing necessary elements or steps.

Claims 5 and 6 do not overcome the deficiencies of claim 4 and are rejected by virtue of their dependencies.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 8 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for “generates a master mask for each entry in the table”, does not reasonably provide enablement for “generating an encoded value”. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. It is unclear to the examiner about an “encoded value” is “generating” from “each of the network addresses” and wherein the specification disclosed a portion of “each of the network addresses” is extracted.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 – 7, 9 and 50 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application with useful, concrete and tangible result.

Claims 1-7, 9 and 50 recite a method or apparatus for storing in a data structure, acquiring network proximity information and compressing the data structure.

In the above limitation, there is no physical transformation being claimed, a practical application would be established by a useful, concrete and tangible result.

For it to be a tangible result, it must be more than a thought or a computation and must have a real world value rather than being an abstract idea. The invention as recited in the claim for storing in a data structure and compressing the data structure. It is unclear as to what kind of tangible output is obtained by storing the network proximity information and compressing a data structure.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-21, 33-42 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 20020172203 to Ji et al. (hereinafter “Ji”).

As to claim 1, Ji discloses a method comprising:

storing in a data structure information representing a plurality of clients on a network (paragraph 0015 where Ji discloses a data structure storing IP destination address i.e. information representing a plurality of clients on a network); and

dynamically compressing the data structure based on network proximity information relating to the clients (paragraph 0015, paragraph 0028 where Ji discloses the dynamically compressing the data structure using 16K/C or 16/Kc routing based on network proximity i.e. same network or index).

As to claim 2, Ji discloses a method as recited in claim 1, wherein the data structure comprises a network address of each of the clients and the network proximity information (paragraph 0015 and paragraph 0049 where Ji discloses the network address of the clients and most significant 16 bits are interpreted as segment i.e. proximity information).

As to claim 3, Ji discloses a method as recited in claim 1, wherein said dynamically compressing the data structure based on the network proximity information comprises:

detecting when proximity measurements for at least two clients which share a network address prefix are within a predetermined range of each other (paragraph 0015, paragraph 0029 and paragraph 0049 where Ji discloses the network address of the clients with most significant 16 bits are interpreted as segment i.e. within a predetermined range); and

in response to the proximity measurements being within the predetermined range of each other for the at least two clients, merging entries for the at least two clients in the data structure (paragraph 0032 and Table 1 where Ji discloses the merging entries for clients in the data structure).

As to claim 4, Ji discloses a method as recited in claim 1, further compressing losslessly decompressing the data structure (paragraphs 0048-0053 where Ji discloses the decompressing procedure to extract data information).

As to claim 5, Ji discloses a method as recited in claim 4, wherein said losslessly decompressing the data structure comprises splitting a merged entry in the data

structure representing at least two clients into a plurality of separate entries (paragraph 0032 where Ji discloses K value may change dynamically i.e. splitting a merged entry in the data structure into a plurality of separate entries).

As to claim 6, Ji discloses a method as recited in claim 4, wherein said losslessly decompressing the data structure comprises decompressing the data structure in response to a detected change in network conditions (paragraph 0032 where Ji discloses K value may change dynamically i.e. decompressing the data structure in response to a detected change in network conditions such as a new route is added).

As to claim 7, Ji discloses a method as recited in claim 1, wherein the data structure comprises a network address of each of the clients (paragraph 0015 where Ji discloses a data structure storing IP destination address).

As to claim 8, Ji discloses a method as recited in claim 7, further comprising:
generating an encoded value from each of the network addresses (paragraph 0028 where Ji discloses a generating an encoded value from each of the network addresses i.e. T1_RIB table);

storing each of the encoded values in the data structure in association with a corresponding network address (paragraph 0028 where Ji discloses a storing each of the encoded values in the data structure in association with a corresponding network address i.e. T1_RIB table); and

modifying one or more of the encoded values to indicate entries in the data structure that have been merged (paragraph 0028 where Ji discloses a one or more of

the encoded values to indicate entries in the data structure that have been merged i.e. T2_RIB table).

As to claim 9, Ji discloses a method as recited in claim 1, wherein the data structure comprises the network proximity information (paragraph 0032 where Ji discloses the using of prefix IP address i.e. network proximity information as such the IP prefix length indicates the clients that are sharing the same network segment of IP prefix length).

As to claim 10, Ji discloses a method as recited in claim 9, wherein the method is performed in a content delivery agent configured to deliver content to the plurality of clients (paragraphs 0015-0017 where Ji discloses the using of his method and data structure to configure many form of hardware as content delivery agent to the plurality of clients).

As to claim 11, Ji discloses a method as recited in claim 9, wherein the method is performed in a request routing agent configured to route content requests from any of the plurality of clients (paragraphs 0015-0017 where Ji discloses the using of his method and data structure to perform in a request routing agent configured to route content requests from any of the plurality of clients).

As to claim 12, Ji discloses a method as recited in claim 1, further comprising reporting information from the data structure to a request routing server (paragraphs 0048-0054 where Ji discloses the information from the data structure is reported to a request routing server i.e. router for each route lookup and update process).

As to claim 33, Ji discloses a processing system comprising:

a processor (paragraph 0016 where Ji discloses a processor i.e. a CPU);
a network communication device to enable the processing system to
communicate with a plurality of clients over a network (paragraph 0048 where Ji
discloses a network communication device i.e. a router); and

a storage device containing instructions which, when executed by the processor,
cause the processing system to perform a process that includes creating a data
structure that contains information representing the plurality of clients, acquiring network
proximity information relating to the clients, and dynamically compressing the data
structure based on the network proximity information (paragraphs 0015-0017,
paragraph 0028 and paragraph 0049 where Ji discloses a storage device such as
memory containing data structure about client i.e. IP addresses, acquiring network
proximity information relating to the clients i.e. IP address sharing the same network
segment, and dynamically compressing the data structure based on the network
proximity information i.e. dynamically compressing the data structure based on the
network segment).

As to claim 34, Ji discloses a processing system as recited in claim 33, wherein
the data structure comprises a network address of each of the clients and the network
proximity information (paragraph 0015 and paragraph 0049 where Ji discloses the
network address of the clients and most significant 16 bits are interpreted as segment
i.e. proximity information).

As to claim 35, Ji discloses a processing system as recited in claim 34, wherein said dynamically compressing the data structure based on the network proximity information comprises:

detecting when proximity measurements for at least two clients which share a network address prefix are within a predetermined range of each other (paragraph 0015, paragraph 0029 and paragraph 0049 where Ji discloses the network address of the clients with most significant 16 bits are interpreted as segment i.e. within a predetermined range); and

in response to the proximity measurements being within the predetermined range of each other for the at least two clients, merging entries for the at least two clients in the data structure (paragraph 0032 and Table 1 where Ji discloses the merging entries for clients in the data structure).

As to claim 36, Ji discloses a processing system as recited in claim 35, wherein said process further comprises:

forming a mask to represent each of the network addresses (paragraph 0028 where Ji discloses a forming a mask to represent each of the network addresses for a mask table i.e. T1_RIB table);

storing the masks in the data structure (paragraph 0028 where Ji discloses a storing a mask to represent each of the network addresses in a mask table i.e. T1_RIB table); and

modifying one or more of the masks to indicate entries in the data structure that have been compressed (paragraph 0028 where Ji discloses a modifying one or more of

the masks to indicate entries in the data structure that have been compressed i.e. T2_RIB table stores modifying mask of entries).

As to claim 37, Ji discloses a processing system as recited in claim 33, wherein the processing system comprises a content delivery agent configured to deliver content to any of the plurality of clients, and said process is performed by the content delivery agent (paragraphs 0015-0017 where Ji discloses the using of his method and data structure to configure many form of hardware as content delivery agent to the plurality of clients and the process is performed by the content delivery agents).

As to claim 38, Ji discloses a processing system as recited in claim 33, wherein the processing system comprises a request routing agent configured to route content requests from any of the plurality of clients, and said process is performed by the request routing agent (paragraphs 0015-0017 where Ji discloses the using of his method and data structure to perform in a request routing agent configured to route content requests from any of the plurality of clients and the process is performed by the requesting routing agent).

As to claim 39, Ji discloses a processing system as recited in claim 33, wherein said process further comprises reporting information from the data structure to a request routing server (paragraphs 0048-0054 where Ji discloses the information from the data structure is reported to a request routing server i.e. router for each route lookup and update process).

As to claim 40, Ji discloses a processing system as recited in claim 33, wherein said process further comprises losslessly decompressing the data structure (paragraphs

0048-0053 where Ji discloses a losslessly decompressing the data structure i.e. extracting a route information).

As to claim 41, Ji discloses a processing system as recited in claim 40, wherein said losslessly decompressing the data structure comprises splitting a merged entry in the data structure representing at least two of the clients into a plurality of separate entries (paragraphs 0032 where Ji discloses K value may change dynamically i.e. splitting a merged entry in the data structure into a plurality of separate entries).

As to claim 42, Ji discloses a processing system as recited in claim 40, wherein said losslessly decompressing the data structure comprises decompressing the data structure in response to a detected change in network conditions (paragraph 0032 where Ji discloses K value may change dynamically i.e. decompressing the data structure in response to a detected change in network conditions such as a new route is added).

As to claim 50, Ji discloses an apparatus comprising:

means for storing in a data structure information representing a plurality of clients on a network (paragraph 0015 where Ji discloses a data structure storing IP destination address i.e. information representing a plurality of clients on a network);

means for acquiring network proximity information relating to the clients (paragraph 0015, paragraph 0029 and paragraph 0049 where Ji discloses the network address of the clients with most significant 16 bits are interpreted as segment i.e. acquiring network proximity information relating to the clients); and

means for dynamically compressing the data structure based on the network proximity information (paragraph 0032 and Table 1 where Ji discloses an example of dynamically compressing the data structure based on the network proximity information).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent Number 5774715 to Mandany et al. discloses a file system level compression using holes.
- b. U.S. Patent Number 5652857 to Shimoi et al. discloses a disk control apparatus for recording and reproducing compression data to physical device of direct access type.
- c. U.S. Patent Application Publication Number 20060106940 to Jagannathan et al. discloses a method for routing of data packets and routing apparatus.
- d. U.S. Patent Application Publication Number 20020129086 to Garcia-Luna-Aceves et al. discloses a cluster-based aggregated switching technique (cast) for routing data packets and information objects in computer networks.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH TAI V. TRAN whose telephone number is (571)270-5129. The examiner can normally be reached on Monday through Thursday from 8:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on (571)272-4105. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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